WHAT IS CLAIMED IS:

1. A vehicle control system, comprising:

an engine configured to drive a vehicle;

an alternator as an auxiliary machine of said engine, driven mainly by the engine;

an airconditioning compressor driven mainly by said engine and having a refrigerant discharge rate control unit capable of adjusting a refrigerant discharge rate per one rotation;

a cooling motor fan driven by an electric power generated by said alternator, including a motor having a motor rotation speed control unit capable of adjusting a rotation speed of the motor, and being configured to introduce an outside air mainly to an airconditioning heat exchanger and an engine cooling heat exchanger;

an engine cooling unit configured to adjust at least one of a water temperature and an oil temperature of said engine; and

a control unit configured to control said engine and auxiliary machines,

wherein said control unit includes an engine control section consisting of:

a temperature-dependent engine control section configured to control a fuel consumption amount of said engine based on at least one of the water temperature and the oil temperature of the engine;

a power-dependent engine control section configured to control the fuel consumption amount of said engine based on an electric power essentially consumed by said cooling motor fan in the vehicle; and

an airconditioning-dependent engine control section configured to control the fuel consumption amount of said engine based on the refrigerant discharge rate of said airconditioning compressor, and

wherein said control unit performs one of the following control operations:

to derive, by an optimizing technique, a combination of controls over the auxiliary machines that minimizes the fuel consumption amount of said

engine, to control the auxiliary machines;

to control an object to be controlled involved in at least two engine control sections among the engine control sections, prior to other objects to be controlled, in order to minimize the fuel consumption amount of said engine; and

to control the auxiliary machines in descending order of magnitude of motive power.

2. A vehicle control system, comprising:

an engine configured to drive a vehicle;

a transmission unit configured to transmit a motive power generated in said engine to a vehicle driving system by changing a rotation speed;

an alternator as an auxiliary machine of said engine, driven mainly by the engine;

an airconditioning compressor driven mainly by said engine and having a refrigerant discharge rate control unit capable of adjusting a refrigerant discharge rate per one rotation;

a cooling motor fan driven by an electric power generated by said alternator, including a motor having a motor rotation speed control unit capable of adjusting a rotation speed of the motor, and being configured to introduce an outside air mainly to an airconditioning heat exchanger and an engine cooling heat exchanger;

an engine cooling unit configured to adjust at least one of a water temperature and an oil temperature of said engine;

a transmission unit oil temperature adjusting unit configured to adjust an oil temperature of said transmission unit; and

a control unit configured to control said engine and auxiliary machines,

wherein said control unit includes an engine control section consisting of:

a temperature-dependent engine control section configured to control a fuel consumption amount of said engine based on at least one of the water temperature of said engine, the oil temperature of said engine, and the oil temperature of said transmission unit;

a power-dependent engine control section configured to control the fuel consumption amount of said engine based on an electric power mainly consumed by said cooling motor fan in the vehicle; and

an airconditioning-dependent engine control section for controlling the fuel consumption amount of said engine based on the refrigerant discharge rate of said airconditioning compressor, and

wherein said control unit performs one of the following control operations:

to derive, by an optimizing technique, a combination of controls over the auxiliary machines that minimizes the fuel consumption amount of said engine, to control the auxiliary machines;

to control an object to be controlled involved in at least two engine control sections among the engine control sections, prior to other objects to be controlled, in order to minimize the fuel consumption amount of said engine; and

to control the auxiliary machines in descending order of magnitude of motive power.

3. A vehicle control system according to claim 1 or claim 2,

wherein said control unit sets, as the optimizing technique, relational expressions between control amounts of the auxiliary machines and the fuel consumption amount of the engine, and derives a combination of optimum values that minimizes the fuel consumption amount based on the plural relational expressions by a mathematical technique such as an extremum finding algorithm or linear programming.

4. A vehicle control system according to claim 1 or claim 2,

wherein said control unit sets said cooling motor fan as the object to be controlled, in the control operation in which the object to be controlled involved in at least two engine control sections among the engine control sections is controlled prior to the other objects to be controlled in order to optimize the fuel consumption amount of said engine.

5. A vehicle control system according to claim 1 or claim 2,

wherein, in the control operation in which the object to be controlled

involved in at least two engine control sections among the engine control sections is controlled prior to the other objects to be controlled in order to minimize the fuel consumption amount of said engine or in the control operation in which the auxiliary machines are controlled in the descending order of the magnitude of the motive power,

said control section controls at least one of said engine cooling unit and said transmission unit oil temperature adjusting unit prior to other objects to be controlled regardless of the control priority order when any one of the water temperature of said engine, the oil temperature of said engine, and the oil temperature of said transmission unit is equal to or higher than a set temperature, the control being performed so as to reduce the water temperature of said engine, the oil temperature of said engine, or the oil temperature of said transmission unit to a lower value than the set temperature.

6. A vehicle control system according to any one of claim 1 to claim 5,

wherein said engine cooling unit includes:

a radiator configured to heat-exchange a cooling water with the outside air;

a cooling water passage through which the cooling water circulates between the radiator and said engine;

a water distribution amount adjusting unit configured to adjust a water distribution amount to the radiator; and

a cooling water pump unit configured to adjust a circulated water amount of the cooling water.

7. A vehicle control system according to any one of claim 1 to claim 6, further comprising:

an airconditioning unit including an airconditioning refrigeration cycle;

an airconditioner setting unit through which a passenger makes a setting; and

an airconditioning control unit configured to control said airconditioning unit based on said airconditioner setting unit,

wherein said airconditioning-dependent engine control section controls the refrigerant discharge rate of said airconditioning compressor and a rotation

speed of said cooling motor fan via said airconditioning control unit, and while performing a control to minimize a total motive power of said airconditioning compressor and said cooling motor fan, the airconditioning-dependent engine control section controls said engine cooling unit according to a set condition of said cooling motor fan which is selected in the control to minimize the total motive power.

8. A vehicle control system according to any one of claim 1 to claim 7,

wherein said control unit controls said water distribution amount adjusting unit and said cooling water pump unit based on the set condition of said cooling motor fan and a target engine water temperature to make the water temperature of said engine equal to the target engine water temperature.

9. A vehicle control system according to any one claim 1 to claim 8,

wherein said control unit varies control command values of the auxiliary machines including said airconditioning compressor to minimize a total load power of said alternator and said airconditioning compressor applied onto said engine, examines a change in the total load power, and automatically probes in which direction the control commands should be varied in order to minimize the total load power.

10. A vehicle control system according to claim 9,

wherein said control unit stores a result of the probe regarding in which direction the control command values of the auxiliary machines should be varied in order to minimize the total load power, according to a use condition of at least one of the auxiliary machines and said engine, and controls the auxiliary machines based on the stored contents.